

**What is claimed is:**

1. A disk player comprising:

a deck base;

a deck plate elastically coupled to said deck base;

5 at least one buffering member interposed between said deck base and said deck plate for protecting said deck plate from external impacts;

a spindle motor having a rotational shaft and being mounted to said deck plate for providing a rotational force to a disk;

10 a turntable mounted to said rotational shaft of said spindle motor for accommodating the disk;

a clamper for holding the disk in place on said turntable;

15 an optical pickup installed at said deck plate to be capable of moving across the disk; and

a self-compensating dynamic balancer mounted to at least one among members which are rotated by the rotational force provided by said spindle motor, the center of gravity of said self-compensating dynamic balancer being located opposite to that of said disk with respect to said rotational shaft of said spindle motor by a centrifugal force generated during rotation of the disk.

2. A disk player as claimed in claim 1, wherein said self-compensating dynamic balancer includes a

hollow tube and a mobile unit which is disposed in said hollow tube so as to move freely therein.

3. A disk player as claimed in claim 2, wherein said hollow tube is formed of a body having a race in which said mobile unit is disposed and a cover member which covers said race by being coupled to said body.

4. A disk player as claimed in claim 3, wherein said mobile unit includes at least a single rigid body which can move in said race.

5. A disk player as claimed in claim 4, wherein said rigid body is formed into a shape selected from the group consisting of a spherical body which can roll inside said race, a cylindrical body which can roll with an outer circumferential surface thereof contacting the inner surface of an outer circular wall of said race, a truncated conic body which can roll with an outer circumferential surface thereof contacting a bottom surface of said race, and a fan-shaped block which can slide while being in contact with one of the bottom surface and the outer circular wall of said race.

6. A disk player as claimed in claim 4, wherein said rigid body is formed of a non-magnetic material

in order to avoid being influenced by a magnetic force.

7. A disk player as claimed in claim 6, wherein said rigid body is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

8. A disk player as claimed in claim 4, wherein said rigid body is formed of a non-oxidizing substance which does not corrode.

9. A disk player as claimed in claim 8, wherein said rigid body is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

10. A disk player as claimed in claim 6, wherein an outer circumferential surface of said rigid body is anti-oxidation coated.

11. A disk player as claimed in claim 10, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc

and nickel-chromium plated over a base material of  
carbon steel or chromium steel.

12. A disk player as claimed in claim 3, wherein  
said mobile unit includes a fluid which is injected  
into said race to be capable of moving, said fluid  
being located such that the center of gravity thereof  
is located opposite to that of the disk with respect  
to said rotational shaft by a centrifugal force  
generated during rotation of said hollow tube.

13. A disk player as claimed in claim 2, wherein  
the cross section of said hollow tube in which said  
mobile unit is located has a shape selected from the  
group consisting of a rectangular shape, an oval shape  
having a longer axis in a latitudinal direction with  
respect to said rotational shaft, and an inwardly  
bulging polygonal shape in which a portion of each  
side contacting said mobile unit bulges inward.

14. A disk player as claimed in claim 2, wherein  
said rigid body is formed of a non-magnetic material  
in order to avoid being influenced by a magnetic  
force.

15. A disk player as claimed in claim 14,  
wherein said tube is formed of a substance selected  
from the group consisting of tungsten carbide (WC),

beryllium steel (CuBe), Hastelloy C-276, silicon  
5 nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum,  
austenite-series steel YHD50, a non-magnetic metal  
such as SUS300, SUS304 and SUS316, ceramic and a  
synthetic resin.

16. A disk player as claimed in claim 2, wherein  
said hollow tube is formed of a non-oxidizing  
substance which does not corrode.

17. A disk player as claimed in claim 16,  
wherein said hollow tube is formed of a substance  
selected from the group consisting of SUS300, ceramic  
and a synthetic resin.

18. A disk player as claimed in claim 2, wherein  
the surface of said hollow tube facing said mobile  
unit is anti-oxidation coated.

19. A disk player as claimed in claim 18,  
wherein said anti-oxidation coating is formed of one  
selected from the group consisting of zinc and nickel-  
chromium plated over a base material of carbon steel  
5 or chromium steel.

20. A disk player as claimed in claim 1, wherein  
said self-compensating dynamic balancer includes at  
least two circular tubes which are arranged to be

concentric and adjacent to each other and have mobile  
units located in the respective tubes.

21. A disk player as claimed in claim 20,  
wherein the mobile unit of each of the respective  
tubes is a rigid body which can one of roll and slide  
in the respective tubes.

22. A disk player as claimed in claim 21,  
wherein weights of said rigid bodies located in the  
respective tubes differ from each other.

23. A disk player as claimed in claim 1, wherein  
said self-compensating dynamic balancer includes a  
support plate fixed to said rotational shaft of said  
spindle motor and at least one pivoting plate hinge-  
coupled to said support plate parallel to each other.

24. A disk player as claimed in claim 1, wherein  
said self-compensating dynamic balancer is formed to  
incorporate said turntable.

25. A disk player as claimed in claim 24,  
wherein said turntable includes a placing member,  
which has a coupling hole coupled to said spindle  
motor and a placing surface on which the disk is  
placed, and a coupling protrusion which is formed to

project from said placing member and the center hole of said disk is fittingly coupled thereto, and

wherein said self-compensating dynamic balancer includes a circular race which is formed in said placing member and rotates around the center of rotation of said placing member, a mobile unit including a rigid body which is disposed in said circular race, and a cover member which is coupled to an opening of said race to cover said race.

26. A disk player as claimed in claim 25, further comprising a fluid injected into said race to be capable of moving.

27. A disk player as claimed in claim 25, wherein said turntable further comprises an installation groove formed in said coupling protrusion and a magnet, which is inserted in said installation groove, for fixing the disk placed on said placing surface by a magnetic attractive force with said clamper.

28. A disk player as claimed in claim 25, wherein the cross-section of said race in which said mobile unit can roll has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in a latitudinal direction with respect to said rotational shaft, and an inwardly

bulging polygonal shape in which a portion of each side contacting said mobile unit bulges inward.

29. A disk player as claimed in claim 25, wherein said rigid body is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

30. A disk player as claimed in claim 29, wherein said rigid body is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

31. A disk player as claimed in claim 25, wherein said rigid body is formed of a non-oxidizing substance which does not corrode.

32. A disk player as claimed in claim 31, wherein said rigid body is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.



33. A disk player as claimed in claim 25, wherein an outer circumferential surface of said rigid body is anti-oxidation coated.

34. A disk player as claimed in claim 33, wherein said anti-oxidation coating is formed of a material one selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

35. A disk player as claimed in claim 25, wherein a cross-section formed by said placing member and said cover member in which said mobile unit is located has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in a latitudinal direction with respect said rotational shaft, and an inwardly bulging polygonal shape in which a portion of each side contacting said rigid body bulges inward.

36. A disk player as claimed in claim 25, wherein said placing member and said cover member are formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

37. A disk player as claimed in claim 36, wherein said placing member and said cover member are formed of a substance selected from the group

5 consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

38. A disk player as claimed in claim 25, wherein said placing member and said cover member are formed of a non-oxidizing substance which does not corrode.

39. A disk player as claimed in claim 38, wherein said placing member and said cover member are formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

40. A disk player as claimed in claim 25, wherein a surface of said placing member and said cover member facing said rigid body is anti-oxidation coated.

41. A disk player as claimed in claim 40, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

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42. A disk player as claimed in claim 24,  
wherein said turntable includes a placing member,  
which has a coupling hole coupled to said spindle  
motor and a placing surface on which a disk is placed,  
and a coupling protrusion which is formed so as to  
project from said placing member and a center hole of  
said disk is fittingly coupled thereto, and

wherein said self-compensating dynamic balancer  
includes at least two circular races which are formed  
in said placing member and rotate around the rotation  
center of said placing member, mobile units including  
rigid bodies disposed in the respective circular  
races, and a cover member which is coupled to an  
opening of each of said races to cover said races.

43. A disk player as claimed in claim 42,  
wherein weights of said rigid bodies located inside  
each of said races differ from each other.

44. A disk player as claimed in claim 42,  
wherein a fluid is injected into at least one of said  
races.

45. A disk player as claimed in claim 42,  
wherein said turntable further includes an  
installation groove formed in said coupling protrusion  
and a magnet which is inserted in said installation  
groove for fixing the disk placed on said placing

surface by a magnetic attractive force with said clamper.

46. A disk player as claimed in claim 24, wherein said turntable includes a placing member, which has a coupling hole coupled to said spindle motor and a placing surface on which a disk is placed, and a coupling protrusion which is formed to project from said placing member and the center hole of said disk is fittingly coupled thereto, and

wherein said self-compensating dynamic balancer includes a circular race which is formed in said placing member and rotates around the center of rotation of said placing member, a fluid injected into said race to be capable of moving, and a cover member which is coupled to an opening of said race for sealing the inner space of said race.

47. A disk player as claimed in claim 24, wherein said turntable includes a placing member, which has a coupling hole coupled to said spindle motor and a placing surface on which a disk is placed, and a coupling protrusion which is formed to project from said placing member and the center hole of said disk is fittingly coupled thereto, and

wherein said self-compensating dynamic balancer includes at least two circular races which are formed in said placing member to be concentric and adjacent

to each other and rotates around the center of rotation of said placing member, a fluid injected into each of said races to be capable of moving, and a cover member which is coupled to an opening of each race for sealing an inner space of the races.

48. A disk player as claimed in claim 1, wherein said self-compensating dynamic balancer is formed to incorporate said clamper.

49. A disk player as claimed in claim 48, wherein said clamper includes a clamper main body mounted to said deck base to be capable of rotating by a rotational force of said spindle motor during operation thereof, a pressing unit installed at said clamper main body to press a disk in place on said turntable, and

wherein said self-compensating dynamic balancer includes a circular race which is formed in said clamper main body and rotates around the center of rotation of said clamper main body, a plurality of rigid bodies which are installed in said race to be capable of moving, and a cover member which is coupled to an opening of said race to cover said race.

50. A disk player as claimed in claim 49, further comprising a fluid which is injected into said race to be capable of moving.

51. A disk player as claimed in claim 49,  
wherein a bottom surface of said clamper main body  
contacts said disk, and said pressing unit comprises  
a yoke member which is coupled to an inside lower  
portion of said clamper main body for pressing said  
disk by a magnetic attractive force with said  
turntable.

52. A disk player as claimed in claim 49,  
wherein said pressing unit includes a pressing plate  
installed at a bottom surface of said clamper main  
body to be capable of moving up or down for pressing  
against said disk, and an elastic member interposed  
between said clamper main body and said pressing plate  
such that said pressing plate can elastically press  
against said disk.

53. A disk player as claimed in claim 49,  
wherein said rigid body is formed into a shape  
selected from the group consisting of a spherical body  
which can roll inside said race, a cylindrical body  
which can roll while an outer circumferential surface  
thereof contacting an inner surface of an outer  
circular wall of said race, a truncated conic body  
which can roll while an outer circumferential surface  
thereof contacting a bottom surface of said race, and  
a fan-shaped block which can slide while being in

contact with one of the bottom surface and the outer circular wall of said race.

54. A disk player as claimed in claim 49, wherein each of said rigid bodies is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

55. A disk player as claimed in claim 54, wherein each of said rigid bodies is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

56. A disk player as claimed in claim 49, wherein each of said rigid bodies is formed of a non-oxidizing substance which does not corrode.

57. A disk player as claimed in claim 56, wherein each of said rigid bodies is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

58. A disk player as claimed in claim 49, wherein a surface of each of said rigid bodies is anti-oxidation coated.

59. A disk player as claimed in claim 58, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

60. A disk player as claimed in claim 49, wherein the cross-section formed by said clamper main body and said cover member in which said rigid bodies are located has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in a latitudinal direction with respect to the rotational shaft, and an inwardly bulging polygonal shape in which a portion of each side contacting said rigid bodies bulges inward.

61. A disk player as claimed in claim 49, wherein said clamper main body and said cover member are formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

62. A disk player as claimed in claim 61, wherein said clamper main body and said cover member are formed of a substance selected from the group



consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

63. A disk player as claimed in claim 49, wherein said clamper main body and said cover member are formed of a non-oxidizing substance which does not corrode.

64. A disk player as claimed in claim 63, wherein said clamper main body and said cover member are formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

65. A disk player as claimed in claim 49, wherein surfaces of said clamper main body and said cover member are anti-oxidation coated.

66. A disk player as claimed in claim 65, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

67. A disk player as claimed in claim 48, wherein said clamper includes a clamper main body

which is mounted to said deck base to be capable of being moved by a rotational force of said spindle motor during operation thereof and a pressing unit installed at said clamper main body for pressing against the disk placed on said turntable, and

wherein said self-compensating dynamic balancer includes at least two circular races which are formed in said clamper main body to be concentric and adjacent to each other and rotates around the center of rotation of said main body, a plurality of rigid bodies installed inside said respective races to be capable of moving, and a cover member which is coupled to an opening of each of said races to cover said races.

68. A disk player as claimed in claim 67, wherein weights of said rigid bodies located inside each of said races differ from each other.

69. A disk player as claimed in claim 67, wherein a fluid is injected into at least one of said races.

70. A disk player as claimed in claim 67, wherein a bottom surface of said clamper main body contacts said disk, and said pressing unit comprises a yoke member which is coupled to the inside lower portion of said clamper main body for pressing against

said disk by a magnetic attractive force with said turntable.

5 71. A disk player as claimed in claim 67, wherein said pressing unit includes a pressing plate installed at the bottom surface of said clamper main body to be capable of moving up or down for pressing said disk, and an elastic member interposed between said clamper main body and said pressing plate such that said pressing plate can elastically press against said disk.

5 72. A disk player as claimed in claim 48, wherein said clamper includes a clamper main body which is mounted to said deck base to be capable of being moved by a rotational force of said spindle motor during operation thereof and a pressing against unit installed at said clamper main body for pressing the disk placed on said turntable, and

10 wherein said self-compensating dynamic balancer includes a circular race which is formed in said clamper main body and rotates around the center of rotation of said clamper main body, a fluid injected into said race to be capable of moving, and a cover member which is coupled to an opening of said race for sealing an inner space of said race.

73. A disk player as claimed in claim 48,  
wherein said clamper includes a clamper main body  
which is installed on said deck base to be capable of  
being moved by a rotational force of said spindle  
motor during operation thereof and a pressing unit  
installed at said clamper main body for pressing the  
disk placed on said turntable, and

wherein said self-compensating dynamic balancer  
includes at least two circular races which are formed  
in said clamper main body to be concentric and  
adjacent to each other and rotates around the center  
of rotation of said clamper main body, a fluid  
injected into each of said races to be capable of  
moving, and a cover member which is coupled to an  
opening of said races for sealing an inner space of  
each of said races.

74. A disk player as claimed in claim 1, wherein  
said self-compensating dynamic balancer is formed to  
incorporate said spindle motor.

75. A disk player as claimed in claim 74,  
wherein said spindle motor comprises:

a motor base which is coupled to said deck plate;  
a stator fixedly installed at said motor base and  
having a through hole through which said rotational  
shaft is rotatably installed, a yoke and a coil wound  
around said yoke; and

a rotor having a case which is fixed to an end of  
said rotational shaft and encloses said stator, and a  
magnet which is fixed inside said case to face said  
yoke, whereby said rotational shaft can be rotated by  
an electromagnetic force between said stator and said  
rotor, and

wherein said self-compensating dynamic balancer  
comprises a circular race which is formed integrally  
with said case and rotates around the center of  
rotation of said rotational shaft, a plurality of  
rigid bodies which are installed in said race to be  
capable of moving, and a cover member which is coupled  
to an opening of said race to cover said race.

76. A disk player as claimed in claim 75,  
further comprising a fluid injected into said race to  
be capable of moving.

77. A disk player as claimed in claim 75,  
wherein each of said rigid bodies is formed into a  
shape selected from the group consisting of a  
spherical body which can roll inside said race, a  
cylindrical body which can roll with an outer  
circumferential surface thereof contacting an inner  
surface of an outer circular wall of said race, a  
truncated conic body which can roll with an outer  
circumferential surface thereof contacting the bottom  
surface of said race, and a fan-shaped block which can

slide being in contact with the bottom surface or the outer circular wall of said race.

78. A disk player as claimed in claim 75, wherein each of said rigid bodies is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

79. A disk player as claimed in claim 78, wherein each of said rigid bodies is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

80. A disk player as claimed in claim 75, wherein each of said rigid bodies is formed of a non-oxidizing substance which does not corrode.

81. A disk player as claimed in claim 80, wherein each of said rigid bodies is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

82. A disk player as claimed in claim 75, wherein the outer circumferential surface of each of said rigid bodies is anti-oxidation coated.

83. A disk player as claimed in claim 82, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

84. A disk player as claimed in claim 75, wherein a cross-section formed by said case and said cover member in which said rigid bodies are located has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in the latitudinal direction with respect to the rotational shaft, and an inwardly bulging polygonal shape in which a portion of each side contacting said rigid body bulges inward.

85. A disk player as claimed in claim 75, wherein said case and said cover member are formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

86. A disk player as claimed in claim 85, wherein said case and said cover member are formed of a substance selected from the group consisting of

5 tungsten carbide (WC), beryllium steel (CuBe),  
Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia  
( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50,  
a non-magnetic metal such as SUS300, SUS304 and  
SUS316, ceramic and a synthetic resin.

87. A disk player as claimed in claim 75,  
wherein said case and said cover member are formed of  
a non-oxidizing substance which does not corrode.

88. A disk player as claimed in claim 87,  
wherein said case and said cover member are formed of  
a substance selected from the group consisting of  
SUS300, ceramic and a synthetic resin.

89. A disk player as claimed in claim 75,  
wherein surfaces of said case and said cover member  
are anti-oxidation coated.

90. A disk player as claimed in claim 89,  
wherein said anti-oxidation coating is formed of a  
material selected from the group consisting of zinc  
and nickel-chromium plated over a base material of  
5 carbon steel or chromium steel.

91. A disk player as claimed in claim 74,  
wherein said spindle motor comprises:

a motor base which is coupled to said deck plate;



5 a stator fixedly installed at said motor base and  
having a through hole through which said rotational  
shaft is rotatably installed, a yoke and a coil wound  
around said yoke; and

10 a rotor having a case which is fixed to an end of  
said rotational shaft and encloses said stator, and a  
magnet which is fixed inside said case to face said  
yoke, whereby said rotational shaft can be rotated by  
an electromagnetic force between said stator and said  
rotor, and

15 wherein said self-compensating dynamic balancer  
comprises at least two circular races which are formed  
integrally with said case to be concentric and  
adjacent to each other and rotates around the center  
of rotation of said rotational shaft, a plurality of  
rigid bodies which are installed in said respective  
20 races to be capable of moving, and a cover member  
which is coupled to an opening of said races to cover  
said races.

92. A disk player as claimed in claim 91,  
wherein weights of said rigid bodies located inside  
each of said races differ from each other.

93. A disk player as claimed in claim 91,  
wherein a fluid is injected into at least one of said  
races.

94. A turntable incorporating a self-compensating dynamic balancer adopted in a disk player comprising:

5 a placing member having a coupling hole which is coupled to a rotational shaft of a motor and a surface on which a disk is placed, said placing member being rotated by rotation of said motor;

10 a coupling protrusion which is formed on said placing member to project therefrom and into which a center hole of a disk fits;

at least one circular race which is formed in said placing member and rotates around the rotation center of said placing member;

15 a mobile unit which is placed inside said race to be capable of moving;

a cover member which covers an opening of said race.

95. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein said mobile unit comprises a rigid body which can roll inside said race during rotation of said placing member.

96. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 95, wherein, when there is more than one race, weights of

rigid bodies located in each of said races differ from  
each other.

97. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 95, wherein a fluid which can move in said race during rotation of said placing member is further included as said mobile unit.

98. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein said coupling protrusion includes an installation groove which is formed inside the coupling protrusion and a magnet which is inserted in said installation groove.

99. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 95, wherein said rigid body is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

100. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 99, wherein said rigid body is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum,

austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

101. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 95, wherein said rigid body is formed of a non-oxidizing substance which does not corrode.

102. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 101, wherein said rigid body is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

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103. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 95, wherein an outer circumferential surface of said rigid body is anti-oxidation coated.

104. A turntable incorporating a self-compensating dynamic balancer disk player as claimed in claim 103, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

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105. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 95, wherein said rigid body is formed into a shape selected from the group consisting of a spherical body, a cylindrical body, a truncated conic body, and a fan-shaped block.

106. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein said mobile unit comprises a fluid which can slide in said race during rotation of said placing member.

107. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein said placing member and said cover member are formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

108. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 107, wherein said placing member and said cover member are formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

109. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein said placing member and said cover member are formed of a non-oxidizing substance which does not corrode.

110. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 109, wherein said placing member and said cover member are formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

111. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein a surface of said placing member and said cover member facing said rigid body is anti-oxidation coated.

112. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 111, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

113. A turntable incorporating a self-compensating dynamic balancer as claimed in claim 94, wherein a cross-section formed by said race and said

cover member in which said mobile unit is located has  
5 a shape selected from the group consisting of a  
rectangular shape, an oval shape having a longer axis  
in a latitudinal direction with respect to the  
rotational shaft, and an inwardly bulging polygonal  
shape in which a portion of each side contacting said  
10 rigid body bulges inward.

114. A clamper incorporating a self-compensating  
dynamic balancer adopted in a disk player, comprising:

a clamper main body;

5 a pressing unit which is installed at said  
clamper main body for pressing a disk placed on a  
turntable;

at least one circular race which is formed in  
said clamper main body and rotates around the center  
of rotation of said clamper main body;

10 a mobile unit placed inside said race to be  
capable of moving; and

a cover member which covers an opening of said  
race.

115. A clamper incorporating a self-compensating  
dynamic balancer as claimed in claim 114, wherein said  
mobile unit comprises a rigid body which can roll  
inside said race during rotation of said placing  
5 member.

116. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 115, wherein, when there is more than one race, weights of rigid bodies located in each of said races differ from each other.

117. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 115, wherein a fluid which can move in said race during rotation of said placing member is further included as said mobile unit.

118. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein a bottom surface of said clamper main body contacts said disk, and said pressing unit comprises a yoke member which is coupled to a lower portion inside said clamper main body in order to press said disk by a magnetic force with said turntable.

119. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein said pressing unit includes a pressing plate installed at a bottom surface of said clamper main body to be capable of moving up and down for pressing said disk, and an elastic member which is interposed between said clamper main body and said pressing plate such that



said pressing plate can elastically press against said disk.

120. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 115, wherein said rigid body is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

121. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 120, wherein said rigid body is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

122. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 115, wherein said rigid body is formed of a non-oxidizing substance which does not corrode.

123. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 122, wherein said rigid body is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

124. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 115, wherein an outer circumferential surface of said rigid body is anti-oxidation coated.

125. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 124, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

126. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 115, wherein said rigid body is shaped as one among a ball type, a cylindrical body, a truncated conic body, and a fan-shaped block.

127. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein said mobile unit comprises a fluid which can slide in said race during rotation of said clamper main body.

128. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein said clamper main body and said cover member are formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

129. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 128, wherein said clamper main body and said cover member are formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

130. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein said clamper main body and said cover member are formed of a non-oxidizing substance which does not corrode.

131. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 130, wherein said clamper main body and said cover member are formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

132. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein surfaces of said clamper main body and said cover member facing said rigid body are anti-oxidation coated.

133. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 132, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

134. A clamper incorporating a self-compensating dynamic balancer as claimed in claim 114, wherein a cross-section formed by said race and said cover member in which said mobile unit is located has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in a latitudinal direction with respect to the center of rotation, and an inwardly bulging polygonal shape in which a portion of each side bulges inward.

135. A spindle motor incorporating a self-compensating dynamic balancer adopted in disk player, comprising:

a rotational shaft;

a motor base having a through hole in which said rotational shaft is rotatably inserted;

a stator fixedly installed at said motor base and having a yoke and a coil wound around said yoke;

a rotor having a case which is fixed to an end of said rotational shaft and encloses said stator, and a

magnet which is fixed inside said case to face said yoke;

at least one circular race which is integrally formed with said case and rotates around the center of rotational of said rotational shaft;

a mobile unit located inside said race to be capable of moving; and

a cover member which is coupled to an opening of said race for sealing an inner space of said race.

136. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 135, wherein said mobile unit is a rigid body which can roll in said race during rotation of said case.

137. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 136, wherein, when there is more than one race, weights of said rigid bodies located in each of said races differ from each other.

138. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 136, wherein a fluid which can flow in said race during rotation of said case is further included as said mobile unit.

139. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 136, wherein said rigid body is formed of a non-magnetic material in order to avoid being influenced by a magnetic force.

140. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 139, wherein said rigid body is formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

141. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 136, wherein said rigid body is formed of a non-oxidizing substance which does not corrode.

142. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 141, wherein said rigid body is formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

143. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 136, wherein an outer circumferential surface of said rigid body is anti-oxidation coated.

144. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 143, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

145. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 136, wherein said rigid body is formed in a shape selected from the group consisting of a ball type, a cylindrical body, a truncated conic body, and a fan-shaped block.

146. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 135, wherein said mobile unit comprises a fluid which can flow in said race during rotation of said spindle motor main body.

147. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 135, wherein said case and said cover member are formed of

a non-magnetic material in order to avoid being  
influenced by a magnetic force.

148. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 147, wherein said case and said cover member are formed of a substance selected from the group consisting of tungsten carbide (WC), beryllium steel (CuBe), Hastelloy C-276, silicon nitride ( $\text{Si}_3\text{N}_4$ ), zirconia ( $\text{ZrO}_2$ ), brass, aluminum, austenite-series steel YHD50, a non-magnetic metal such as SUS300, SUS304 and SUS316, ceramic and a synthetic resin.

149. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 135, wherein said case and said cover member are formed of a non-oxidizing substance which does not corrode.

150. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 149, wherein said case and said cover member are formed of a substance selected from the group consisting of SUS300, ceramic and a synthetic resin.

151. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 135, wherein surfaces of said case and said cover member facing said rigid body are anti-oxidation coated.



152. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 151, wherein said anti-oxidation coating is formed of a material selected from the group consisting of zinc and nickel-chromium plated over a base material of carbon steel or chromium steel.

153. A spindle motor incorporating a self-compensating dynamic balancer as claimed in claim 135, wherein a cross-section formed by said race and said cover member in which said mobile unit is located has a shape selected from the group consisting of a rectangular shape, an oval shape having a longer axis in a latitudinal direction with respect to the rotational shaft, and an inwardly bulging polygonal shape in which a portion of each side bulges inward.